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(71) Applicant: HID Corporation
Irvine, California 92618-1905 (US)

(72) Inventor: De Vall, Franklin B.
Boulder, Colorado 80302 (US)

(74) Representative:
Otten, Hajo, Dr.-Ing. et al
Witte, Weller, Gahlert, Otten & Steil,
Patentanwälte,
Rotebühlstrasse 121
70178 Stuttgart (DE)

(54) RF transponder with resonant crossover antenna coil

(57) An RF transponder couples the outer end (14) of a coiled antenna winding (4) to a transponder circuit (8) located inside the winding (4) by a lead line (16) that crosses over the winding turns and is separated from the winding (4) by a dielectric material. The width of the lead line (16) is substantially greater than the antenna line width, yielding capacitances at the crossover sites that establish a resonant frequency for communicating with the transponder circuit (8) at a predetermined RF frequency. An optional discrete capacitor (20) can also be used to boost the capacitance to a desired level. All of the transponder components are formed on one side of a flexible substrate (2), the opposite side of which is coated with an adhesive that is covered by a peel-off sheet, allowing the transponder to be affixed to packages as a part of a package identification system.

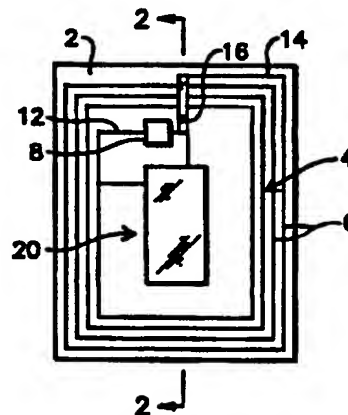


Fig. 1

EUROPEAN SEARCH REPORT

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 595 549 A (HUGHES MICROELECTRONICS EUROPA) 4 May 1994 (1994-05-04)	1,8,9,	G06K19/077
Y	* the whole document *	12,13	G06K7/10
A	---	10,11,	
		14-17	
Y	US 5 241 299 A (MAZOKI GARY T ET AL) 31 August 1993 (1993-08-31)	2-7	
A	* column 3, line 38 - column 5, line 41; claim 12; figure 1 *	10,11,	
	---	14-17	
A	EP 0 380 426 A (TOKAI METALS CO) 1 August 1990 (1990-08-01)	1,8,9	
	* the whole document *		

A	WO 93 12513 A (GUSTAFSON AKE) 24 June 1993 (1993-06-24)	1-7	
	* page 4, line 22 - page 8, line 9; figures 1,2 *	14-17	

			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			G06K
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		27 January 2000	Degraeve, A
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 95 11 5202

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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27-01-2000

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 0595549	A	04-05-1994	DE	69313776 D	16-10-1997
			DE	69313776 T	19-02-1998
			JP	6243358 A	02-09-1994
US 5241299	A	31-08-1993	US	5142270 A	25-08-1992
			AU	655645 B	05-01-1995
			AU	2009692 A	30-12-1992
			CA	2103355 A,C	23-11-1992
			EP	0587696 A	23-03-1994
			FI	935118 A	18-11-1993
			JP	7500432 T	12-01-1995
			MX	9202424 A	01-02-1993
			NO	934189 A	19-11-1993
			NZ	242809 A	22-12-1994
			WO	9221113 A	26-11-1992
EP 0380426	A	01-08-1990	JP	2081556 C	23-08-1996
			JP	2195491 A	02-08-1990
			JP	7080386 B	30-08-1995
			AT	126924 T	15-09-1995
			DE	69021743 D	28-09-1995
			DE	69021743 T	07-03-1996
			US	5119070 A	02-06-1992
			US	5201988 A	13-04-1993
WO 9312513	A	24-06-1993	AT	136674 T	15-04-1996
			AU	3086392 A	19-07-1993
			BR	9206945 A	28-11-1995
			DE	69209851 D	15-05-1996
			DE	69209851 T	05-09-1996
			EP	0617826 A	05-10-1994
			ES	2086137 T	16-06-1996
			JP	6511579 T	22-12-1994